

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Makoto SANPEI et al.

Serial No: 10/576,672

Filed: April 21, 2006

For: DAMPER

Attorney Docket No.: 14048-029

Examiner: Jeffrey Lenihan

Group Art Unit: 1796

Conf. No.: 7213

DECLARATION OF MAKOTO SANPEI UNDER 37 CFR §1.132

I, Makoto Sanpei, hereby declare and say:

1. That I am currently employed by NOK Corporation and have been employed by NOK Corporation since 1997
2. During my entire employed by NOK Corporation I have been assigned to the development of anti-vibration rubber materials.
3. That my educational background includes graduation from Kanagawa University Graduate School where I majored in applied chemistry, specializing in functional polymer materials.
4. That I have reviewed and understand the specification, drawings and claims of U.S. Patent Application Serial No. 10/576,672, entitled "DAMPER."
5. That I am a co-inventor of U.S. Patent Application Serial No. 10/576,672.
6. That I have reviewed the Office April 12, 2011 and the prior art cited and relied upon by the Examiner in this Office Action.

7. That under my direct control and supervision a commercially available α -olefin oligomer having a Mn of 443 was obtained and tested as described below.

8. That for all practical purposes this commercially available α -olefin oligomer was the closest found available to having a Mn of 400. That is, those skilled in the art understand that it is impractical to produce α -olefin oligomers with precise Mn's such as 400, 410, 420, etc. even though, as in the case of the present invention, predictions and reasonable expectations can be made (based upon experimentation) to establish conservative limitations on Mn ranges that will produce predictable results - as in the conclusion that an α -olefin oligomer having a Mn of 400 or more will produce distinguishing results over an α -olefin oligomer having a Mn of 300, and will more certainly produce unexpected results over α -olefin oligomer having a Mn of 100, as taught by Yang et al.

9. That using the α -olefin oligomer having a Mn of 443, Experiment 1 as set forth in applicants' specification was conducted under my direct control and supervision and the following results are provided:

Compounding components:

EPDM-1	(parts by weight)	30
EPDM-2	(parts by weight)	40
EPM	(parts by weight)	30

Properties of the blend rubber:

P/E ratio by weight	46.7/53.3
Mooney viscosity (ML100)	50
α -olefin oligomer (parts by weight; Mn: 433)	50
HAF carbon black (parts by weight)	70

Test items and evaluation:

Normal state properties

Hardness	(JIS A)	75
Tensile strength (MPa)		20.0
Elongation (%)		265
Heat resistance		
Change in hardness (points)		+3
Percent change of tensile strength (%)		-4
Percent change of elongation (%)		-5
Gehman torsional test		
T100		-55
Change in resonance frequency		
-30°C/60°C (%)		60
Evaluation		○
100°C/60°C (%)		-8.4
Evaluation		○
Resonance magnification		
Magnification (times)		4.5
Evaluation		○
Resonance point durability test		
Evaluation		○
Kneadability-Moldability		
Evaluation		○
Actual engine test evaluation		
Evaluation		○

10. By comparing the above results to the results set forth in applicants' specification, it can clearly be seen that when the Mn of the α -olefin oligomer is below 300 (i.e. 287) the properties and characteristics of the resulting EPDM composition are inferior to the same properties and characteristics of an EPDM composition that is produced from an α -olefin oligomer that has a Mn of greater than 400, i.e. 443.

11. That in actuality, during the course of the present invention, it was determined that using an α -olefin oligomer having a Mn of less than 300 results in poor physical properties, and thus a Mn range of 300-1,400 was determined to be suitable for purposes of the present invention and a range of 400-1,000 was determined to be preferred.

12. That the testing presented herein and conducted under my direct control and supervision of an α -olefin oligomer having a Mn or 443, represents a practical testing of applicants' invention and is believed to establish a criticality and unexpected results over Yang et al. for the use of an α -olefin oligomer having a Mn of 400 or greater (as compared to the lower Mn of 100 taught by Yang et al.). In this regards, applicants claimed lower limit of 400, by practicality covers any α -olefin oligomer that one may attempt to obtain or produce to practice applicants' claimed invention, such as an α -olefin oligomer having a Mn of 443, which applicants were able to obtain.

13. That it is submitted that the test results presented herein below establish unexpected results over the prior art relied upon and combined by the Examiner, including Yang et al.

14. That I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under

Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of U.S. Patent Application Serial No. 10/576,672 or any patent issuing thereon.

Makoto Sanpei

Date: _____